

Appl. No. 10/718,881
Amdt. 08/09/2005
Response to Office Action of 05/10/2005

Attorney Docket No.: TS03-431
N1085-90172

REMARKS/ARGUMENTS

Claims 1-28 were previously pending in this Application. Claims 14-23 were allowed, claims 3 and 26 objected to, and claims 1, 2, 4-13, 24, 25, 27 and 28 rejected. Claims 1, 2, 4-7, 12-14, 16, 17, 23, 24 and 26 are hereby amended and claim 3 cancelled. Applicants respectfully request re-examination and reconsideration of claims 1, 2, 4-13 and 24-28 and allowance of each of presently pending claims 1, 2 and 4-28.

I. Objections to the Specification

On Page 2 of the Office Action, the Specification was objected to due to informalities associated with a typographical error regarding "hydro-silicon oxynitride (HOxSiN)" and the expression "underlying silicon rich, silicon oxide layer". The specification has been amended and these informalities have been corrected throughout the specification and therefore the objection to the specification should be withdrawn.

II. Claim Objections

On Page 2 of the Office Action, the claims containing the language "hydro-silicon oxynitride (HOxSiN)" (claims 3, 6, 14, 17, 24 and 26) and also claims the language "underlying silicon rich, silicon oxide layer" (claims 3-5, 13-14, 16, 23 and 26) were objected to due to these informalities, along with the specification. Claim 3 has been cancelled and each of claims 4-6, 13-14, 16-17, 23, 24 and 26 has been amended and the informalities thereby corrected. Therefore these claim objections should be withdrawn.

III. Claim Rejections Under 35 U.S.C. § 112

In the Office Action, specifically on page 3, claims 4-7 were rejected under 35 U.S.C. § 112, apparently for antecedent basis issues. Each of claims 4-7 has been amended for consistency with the amendments to base claim 1, and now complies with requirements of 35 U.S.C. § 112, second paragraph and therefore the rejection of claims 4-7 under 35 U.S.C. § 112, second paragraph, should be withdrawn.

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IV. Allowable Subject Matter

Applicants thank the Examiner for indicating, on Page 7 of the Office Action, that claims 14-23 are allowed. Applicants respectfully point out that claims 14, 16, 17 and 23 have been amended to overcome objections, as above.

5 It was also indicated that claims 3 and 26 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all the features of their respective base claims.

The features of claim 3 have been added, by way of amendment, to independent base claim 1 which is therefore in allowable form.

10 Claim 26 depends from independent claim 24 which is in allowable form for reasons discussed below. As such, the objection to claim 26 should be withdrawn.

V. Claim Rejections Under 35 U.S.C. § 102

On page 4 of the Office Action, claims 1-2 were rejected under 35 U.S.C. § 102(b) as being anticipated by Islam, et al. (U.S. Patent No. 6,174,810, hereinafter
15 "Islam"). These claim rejections are overcome because the features of objected-to claim 3 have been added by way of amendment, to claim 1, and claim 2 depends from claim 1.

Islam, as shown in figures 1-6, does not teach or suggest the tri-layer insulator composite formed of an underlying silicon rich – silicon oxide layer, a hydro – silicon
20 oxynitride (SiO_xNH) layer, and an overlying silicon nitride layer.

Claim 1 is allowable and the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Islam, should be withdrawn. Claim 2 depends from allowable Claim 1 and is similarly allowable and distinguished from Islam and therefore the rejection of claim 2 under 35 U.S.C. § 102(b) should therefore also be withdrawn.

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N1085-90172

VI. Claim Rejections Under 35 U.S.C. § 103

On Page 5, second paragraph of the Office Action, claims 4-13, 24, 25, 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Islam as applied to claims 1-2 above in view of Wolf, et al. (Silicon Processing for the VLSI Era, Vol. 1).

5 Applicants respectfully submit that these claim rejections are overcome for reasons set forth below.

10 ** Claims 4-13 are dependant claims that depend from amended independent claim 1 which now allowable and distinguished from Islam for reasons set forth above. Claims 4-13 are therefore also allowable and distinguished from Islam in view of Wolf and the rejection of claims 4-13 under 35 U.S.C. § 103(a) should therefore be withdrawn.

** Independent claim 24 recites the features of the conductive region on the semiconductor substrate and the insulator layer on the tri-layer insulator, such features not taught in Islam or Wolf.

15 Islam, as shown in figures 1-6, does not teach conductive region 38 on semiconductor substrate 10 and it does not teach forming an insulator layer 46 on the tri-layer insulator composite. In Islam, the conductive region 38 is clearly spaced from and not "on" semiconductor substrate 10; there are several layers interposed between the conductive region and the substrate. In Islam, the tri-layers attributed to be the tri-layer insulator composite by the Examiner are layers 40/41/42. Islam does not teach
20 forming an insulator layer "on" the this tri-layer insulator composite; rather, layer 46, alleged by the Examiner to be the insulator layer, is formed "on" etch stop layer 44, not the tri-layer Insulator composite.

25 "On" is defined in Webster's II New College Dictionary (1995) as "used to indicate: positioned above *and in contact with*". "Contact" is defined in Webster's II as the touching of two objects or surfaces". In each of the aforementioned examples, the films of Islam alleged by the Examiner to be "on" the other feature, are clearly not "on"

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the structure alleged by the Examiner, but merely "over" the feature. Wolf has apparently been relied upon for teaching methods for depositing various layers and methods for isotropically etching dielectric layers such as silicon oxide layers and silicon nitride layers. Wolf therefore does not make up for the above-stated deficiencies of Islam and claim 24 is therefore distinguished from Islam in view of Wolf.

Claim 24 is further distinguished from the references of record because claim 24 also recites the feature of "said tri-layer insulator comprised with a hydro-silicon oxynitride (SiOxNH) middle layer. Neither the Islam nor the Wolf reference teach or suggest a hydro-silicon oxynitride as a middle layer of the tri-layer insulator. Applicants further respectfully point out that the Examiner does not allege that Islam teaches or suggests this feature. Claim 24, and therefore claims 25-28 which depend from claim 24, are therefore distinguished from the references of Islam and Wolf, taken alone or in combination. Therefore the rejection of claims 24-25 and 27-28 under 35 U.S.C. § 103(a) as being unpatentable over Islam in view of Wolf, should be withdrawn.

Appl. No. 10/718,881
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CONCLUSION

Based on the foregoing, each of Claims 1-2 and 4-28 is in allowable form and the application therefore in condition for allowance, which action is respectfully and
5 expeditiously requested.

The Assistant Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account 04-1679.

Respectfully submitted,

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